

CLAIMS

1. Positioning method for a radio system, the method comprising:
receiving signals at a unit of the system;
applying at least one test on the received signals to select a
5 processing operation on the signals, the operation being one of the following: a
correlation processing operation (Step 9, 12), a leading edge processing
operation (Step 10); and
then effecting the operation selected.
- 10 2. The method of Claim 1 wherein the test applied comprises
determining whether the signal level of the received signal is above a
threshold value (Step 4).
3. The method of Claim 2 wherein, if the level of the received signal
15 is below the threshold value, the correlation processing operation is selected
(Step 12).
4. The method of Claim 2 comprising, if the level of received signal
is above the threshold value, testing if the leading edge gradient is above a
20 gradient threshold value (Step 6).
5. The method of Claim 3 wherein, if the leading edge gradient is
below the gradient threshold value, the leading edge processing operation is
selected (Step 10).
- 25 6. The method of Claim 4 wherein, if the leading edge gradient is
above the gradient threshold value, the correlation processing operation is
selected (Step 9).
- 30 7. The method of any preceding claim, comprising repeating the
test application and operation steps at predetermined intervals.

8. The method of any preceding claim comprising coherently superposing received pulses before the test application step.

5 9. The method of any preceding claim comprising convolution of a pulse with a bump function.

10 10. The method of any preceding claim comprising, if the signal level is below the signal level threshold, extending the receiving time period for the signal before the next/successive test application(s).

11. The method of any preceding claim comprising, before testing whether the leading edge gradient is above a threshold value, reducing the next transmit period (Step 13).

15 12. The method according to any preceding claim comprising reducing the time period for the leading edge test for operation in a power-saving mode.

20 13. The method according to any preceding claim comprising effecting the leading edge processing operation after selection with no intermediate testing or processing.

25 14. The method according to any preceding claim comprising measuring the gradient using the formula:-

$$i = \frac{Cdv}{Dt}$$

Where V = voltage of the signal waveform,

C = capacitance,

30 i = current

15. The method according to any preceding claim wherein the leading edge processing operation comprises differentiating the received signal voltage or peak and locating the zero-crossing (point of inflexion).

5 16. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of any one or more Claims 1 to 15 when said product is run on a computer.

10 17. A computer program directly loadable into the internal memory of a digital computer, comprising software code portions for performing the method of any one or more of Claims 1 to 15 when said program is run on a computer.

15 18. A carrier, which may comprise electronic signals, for a computer program of Claim 17.

19. Electronic distribution of a computer program product of Claim 16 or a computer program of Claim 17 or a carrier of Claim 18.

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20. Positioning apparatus for a radio system, the apparatus comprising:

means to receive signals at a unit of the system;

25 means (20, 21, 22) to apply at least one test on the received signals to select a processing operation on the signals which is one of the following: a correlation processing operation, a leading edge processing operation; and

means to effect the operation selected.

30 21. Apparatus of Claim 20 comprising means (26) to determine whether the signal level of the received signal is above a threshold value.

22. Apparatus of Claim 21 comprising means (26) to select the correlation processing operation if the level of the received signal is below the threshold value.

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23. Apparatus of Claim 22 comprising means (26) to test whether the leading edge gradient is above a gradient threshold value, if the level of the received signal is above the threshold value.

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24. Apparatus of Claim 22 comprising means (27) to select the leading edge processing operation, if the leading edge gradient is below the gradient threshold value.

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25. Apparatus of Claim 23 comprising means (27) to select the correlation processing operation, if the leading edge gradient is above the gradient threshold value.

26. Apparatus of any of Claims 20 to 25, comprising means to repeat the test application and operation steps at predetermined intervals.

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